

PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

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ORDINARY MEETING

WEDNESDAY, 2nd MAY, at 5.30 p.m.

AGENDA.

1. Confirmation of the Proceedings of the Ordinary Meeting held on 4th April, 1956.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 13].
6. Admission of Fellows.
7. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

Note.—To avoid congestion in the Library and to enable exhibits to be displayed to greater advantage, a table has been placed in the meeting-room for this purpose. Fellows are asked to place their exhibits on this table, with a suitable explanatory note, as soon as possible on the afternoon of the meeting, so that they are available for inspection there before the meeting opens.

8. Communications.

Dr. George Salt, F.R.S.

The ecology and entomology of Upper Kilimanjaro.

[ABSTRACT.]

Kilimanjaro lies near the equator, and the flora and fauna of its lower flanks are tropical; but the summit of the mountain exceeds 19,500 ft. and is ice-capped. The slopes between the base and the crater show a marked altitudinal zonation of the vegetation, each zone with an associated and different fauna. Attention will be directed to the plants and animals living on the mountain above 12,000 ft., and especially to the insects found in the region of alpine desert between 14,000 and 16,000 ft. Many of the insects collected at that altitude were new to science and are unknown from other localities. A large proportion are flightless. The conditions under which they live will be described. The environment and the fauna at high altitudes on Mt. Kenya and in the Ruwenzori will be briefly compared with those on Kilimanjaro.

TEA will be served in the Library before the meeting.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 4TH APRIL, 1956

Dr. W. J. HALL, C.M.G., M.C., President, in the Chair.

Present, 66 Fellows and 5 Visitors.

The minutes of the Ordinary Meeting held on 7th March were confirmed and signed by the President.

The names of the following candidates for election were read for the first time; Miss Ruth Mary Badcock, M.Sc.; Mr. Kuldip Rai Bhatia; Dr. Ewar Bursell; Dr. Jean L. Laffoon; Mr. Christopher Leclère Nissen; Mr. Anthony Kofi Opoku; Professor Shiva Shankar Prasad Sinha; Mr. Kuthanur Ayyaswami Swayamprakash; Mr. Hercules Johannes Viljoen, B.Sc.; Mr. Edward James Wilson; and Mr. Keith Arthur John Wise.

For the second time (taken as read): Dr. Monica Mary Betts; Mr. William Zacheus Coker, B.Sc.; Dr. Isaac Harpaz; Mr. Henry Theodore King; Mr. John Antony McFarlane, B.Sc.; Mr. Donald Martin Minter, B.Sc.; Dr. Surendra Deo Misra; Mr. Alan Arthur Savage; Mr. Peter John Smart; and Mr. Michael Richardson Smith, B.Sc.

The Secretary read the names of the following newly elected Fellows of the Society: Mr. Fred Ashman, 19, Marshall Street, Barnard Castle, Co. Durham; Mr. Peter R. Boyce, B.Sc., 63, Waterside, Chesham, Bucks.; Dr. Victor Horace Chambers, Ph.D., A.R.C.S., 47, Westbourne Road, Luton, Beds.; Mr. Bruce Richard Champ, Imperial College Field Station, Silwood Park, Sunninghill, Berks.; Mr. Ram Nath Katiyar, Entomology Division, Indian Agricultural Research Institute, New Delhi, 12, India; Mr. Angus Wilson Ritchie McCrae, Oak Lawn, 9, Gordon Avenue, Stanmore, Middlesex; Mr. George Mack, B.Sc., Queensland Museum, Brisbane, Australia; Mr. John Robert Parry-Williams, Erylfryn, Pwllheli, N. Wales; Dr. R. Rakshpal, Ph.D., Department of Zoology, University of Lucknow, India; Mr. Ghanagam Narasimha Rao, Sugarcane Breeding Institute, Lawley Road Post, Coimbatore, Madras State, India; Mr. Thomas Stevenson Robertson, 38, Repton Way, Croxley Green, Rickmansworth, Herts.; Mr. David Stanley Saunders, 22, Francis Road, Pinner, Middlesex; Mr. Stanley Brice Wakerley, B.Sc., Bitchfield, Grantham, Lincs.

Thanks were voted to donors of gifts to the Library since the last meeting.

The following papers, accepted for publication in the *Transactions*, were read in title :

"Taxonomy of some British Aphelinid parasites (Hymenoptera) of scale insects (Coccoidea)." By Mashood Alam.

"Drosophilidae (Diptera) within the Arctic Circle. II. The Edinburgh University Expedition to sub-Arctic Norway, 1953." By E. B. Basden and D. G. Harnden.

"The phallic complex in some of the Acridoid families in relation to their taxonomy." By V. M. Dirsh.

"A revision of *Synuchus* Gyllenhal in the widest sense (Coleoptera: Carabidae), including notes on *Pristosia* Mtsch. (*Eucalathus* Bts.) and *Calathus* Bon." By C. H. Lindroth.

"The structure of the eggs of the terrestrial Heteroptera and its relationship to the classification of the group." By T. R. E. Southwood.

Mr. C. E. Dyte and Mr. A. W. R. McCrae signed the Obligation Book and were admitted Fellows of the Society.

Dr. D. J. Lewis and **Mr. D. Macfarlane** exhibited specimens of the large scorpion, *Paradinus imperator* (C. L. Koch), from Sierra Leone and the Gold Coast, and pointed out that it occurs in the equatorial belt of Africa and is one of the animals which show very dark coloration in forest regions with a high rainfall.

Dr. H. E. Hinton gave a paper on a problem in taxonomy presented by a single specimen of an unknown group of insects, a notice of which appeared on page 5.

The specimen is a wingless, eyeless, larva-like adult male. Its chief characteristics are as follows: Labrum and clypeus fused to front. Antennae 2-segmented and completely retracted in a cuticular pocket; without intrinsic muscles in the first segment. Mandibles simple, somewhat falciform, without a molar part. Maxillae with cardo well developed; stipes undivided; palp 3-segmented, basal segment with flexor and extensor muscles arising in stipes; with a single and strongly setose maxillary lobe (fused glaea and lacinia?) which is without muscles. Labium a very short and wide, strongly sclerotised plate which is without sutures; palp 3-segmented, with flexor and extensor muscles inserted in basal segment. Thorax very strongly dorso-ventrally flattened, and with meso- and metathorax more or less completely fused beneath. Legs with coxae globular and large, sides of hind coxae visible from above; femora large; tibiae with well developed levator and depressor muscles, the latter with a group of fibres originating in trochanter, as in all other recent arthropods with normal legs except the Crustacea; tarsi and claws absent; depressor muscle of claw and tarsal muscles absent so that no muscles extend into the tibiae. Abdomen 9-segmented with tergal, pleural, and sternal parts of first segment well developed. Tracheal system with a large longitudinal trunk on each side; with first pair of thoracic spiracles and those of first six abdominal segments large and functional; spiracles of seventh and eighth abdominal segments non-functional and scars seen; second pair of thoracic spiracles apparently non-functional, but scars have not been seen; abdominal spiracles simple, annular, and chamber with numerous peripheral pouches but moulting process of the primitive type; regulatory apparatus with both opening and closing muscles. Male reproductive system with vesiculae seminales very large and consisting of the proximal part of the vas deferens; each testis with two strongly stalked sperm tubes which are free and not collectively enclosed in a sheath. Each sperm tube with two epithelial coats, the outer one of which is in no sense syncytial. External genitalia with median lobe, lateral

lobes, and a basal piece. Gut with a strongly developed pharyngeal pump; posterior part of oesophagus lost but there is no reason to suspect the existence of a diverticulum; mid-gut without projecting regenerative crypts; posterior third of mid-gut with seven very short lateral crypts on each side. Malpighian tubes ending freely in body cavity; apparently eight in number: one group of four, one group of two, and a papilla probably, but not certainly, indicating the presence of two other tubes that have been broken off at base.

In the discussion which followed, Professor Wigglesworth enquired whether Dr. Hinton had considered the possibility that the specimen might be a prothelous Staphylinid combining larval and pupal characters. Dr. Hinton replied that such a premise could in no way account for such features as the labium. He had stressed its relationships to the Staphylinidae because of its stalked sperm tubes and because the maxilla was not unlike that of some Staphylinid larvae. If one had to place it in the order Coleoptera it would probably be placed near the Staphylinidae, but the specimen probably represents a new order between the Megaloptera and Neuroptera. He would be inclined to suggest that it was a parasite of some kind but for the absence of claws, structures hardly ever lost in parasites.

Mr. C. N. Hawkins having enquired if any idea as to the likely habitat and food habits of the insect could be suggested, Dr. Hinton replied that the only information available to him was that the specimen was found in a paddy field in Borneo. The stomach contents were not inconsistent with a sucking habit and the mandibles (which Mr. Hawkins had thought were rather wide apart) probably just met and pierced the prey and drew it close to the labium.

Dr. van Emden, who had seen the specimen some 10 or 15 years ago, said that the general habitus reminded him of a beetle larva of a staphylinoid type. From its mouth parts he would suggest it was a sucking carnivorous insect and, as it was slow moving, it could be assumed to live near its prey, which suggested an Aleocharine, which might for instance prey on termite larvae. This was consistent with the fact that some Staphylinid larvae had reduced legs.

Dr. Hinton replied that he had already drawn attention to features that absolutely excluded it from the Staphylinidae. The most evolved parasitic larvae of the Staphylinidae are those of the Aleocharinae, but these, it should be noted, had a normal labium with a well developed postmentum. The legs were short but neither the tibio-tarsus nor the claw were ever lost. Dr. Hinton said that he had shown this specimen to a Staphylinid authority [Mr. W. O. Steel] who had not thought it could belong to the family nor could it be an Histerid. Mr. Steel then pointed out that the antennae of Staphylinid larvae were all 3-segmented and the maxillary palpi of *Aleochara* 4-segmented and that the aedeagus of Staphylinidae had no basal piece.

The Honorary Secretary said he was attracted to the idea that the specimen was a parasite living at least partly beneath the scales of reptiles; the front being hard and the hind part soft suggested that it lived in a hole, although this did not account for the marked reduction of all sensory organs except the palps.

Dr. G. L. M. Pleskot (a visitor) of the Zoological Institute, University of Vienna, gave a paper on the egg-laying and larval development of *Atherix* (Diptera: Rhagionidae), an abstract of which appeared on page 6.

In the discussion which followed, Dr. Pleskot said, in reply to an inquiry by Professor Richards, that the femora in *A. ibis* are yellowish in colour, sometimes with a dark spot at the base. In *A. femoralis* they are dark brown with a yellow spot at the distal end. All of the flies observed showed the latter colour on all legs.

Dr. van Emden remarked that this was another case where species differed more as larvae than as adults. In this case the larvae would be recognised as good species.

Dr. Hinton said that he had been unable to obtain pupae of the *Atherix* species he had tried to breed. In reply Dr. Pleskot said that it was very easy to rear *A. marginata* but that *A. femoralis* was more difficult to rear in the laboratory and no pupae had been obtained.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 6th June, at 5.30 p.m.

ADDITIONS TO THE LIBRARY.

Presented.

- Barnes, H. F. *Gall midges of economic importance*. Vol. VII. *Gall midges of cereal crops*. 8vo. London (Crosby Lockwood & Son, Ltd.), 1956. (*Agricultural & Horticultural Series.*) [The Publishers.]
- Van Son, G. *The Butterflies of Southern Africa*. Pt. II. *Nymphalidae, Danainae & Satyrinae*. 4to. Pretoria. 1955. (*Transvaal Museum Memoir* 8.) [Trustees of the Transvaal Museum.]
- Vieira, Rui M. S. *A Mosca da fruta Ceratitis capitata* (Wied.) *na Ilha da Madeira*. 8vo. Madeira. 1952. [Mr. J. H. Burman.]

Purchased.

- Thompson, W. R., *Editor*. *A Catalogue of the parasites and predators of insect pests*. Prepared under the direction of W. R. Thompson. Sect 2. *Host parasite catalogue*. Pt. 3. *Hosts of the Hymenoptera (Calliceratid to Evaniid)*. 4to. Ottawa. 1954.
- Inoue, Hiroshi. *Check list of the Lepidoptera of Japan*. Pt. 2. *Alucitidae-Epicopeidae*. Sm. 8vo. Tokyo. 1955.
- Palm, Thure. *Die Holz-und Rinden-Käfer der nordschwedischen Laubbäume*. 8vo. Stockholm. 1951. (*Medd. SkogsforsknInst., Stockh.* Bd. 40 nr. 2.)
- Stichel, Wolfgang. *Illustrierte Bestimmungstabellen der Wanzen*. II *Europa*. 7 Hft. 8vo. Berlin-Hermsdorff. 1956.
- Takeuchi, K. *Coloured illustrations of the insects of Japan*. 8vo. Osaka : Hoikusha. 1955. [In Japanese.]
- Yokoyama, M. *Coloured illustrations of the butterflies of Japan*. 8vo. Osaka : Hoikusha. 1955. [In Japanese.]

In addition, separates have been presented by Dr. H. K. Munro ; Mr. G. S. Dun ; Dr. H. B. D. Kettlewell ; Mr. V. Venkat Rao ; Mr. J. A. Whellan ; Mr. M. C. Mossop ; Mr. R. A. Harrison ; Mr. J. Le Quesne ; Dr. P. S. Corbet ; Lt. Col. F. C. Fraser ; Director of the West African Cocoa Research Institute, Tafo ; Mr. G. O. Stride ; The Director, East African Tsetse and Trypanosomiasis Research Organisation, Nairobi ; Mr. R. F. Bretherton ; Smithsonian Institution ; Dr. Gertrud Pleskot ; Dr. D. J. Lewis ; Trustees of the British Museum (Natural History) ; Dr. E. Broadhead and Dr. T. T. Macan.

NOTICES

In addition to the *Transactions and Proceedings* (Series A, B, and C), the following publications are available on application at the Society's rooms:—

THE GENERIC NAMES OF BRITISH INSECTS, WITH CHECK LISTS OF THE SPECIES, prepared by the Committee on Generic Nomenclature of the Royal Entomological Society of London with the assistance of the Department of Entomology of the British Museum (Natural History):—

Part 1. Recommendations relating to the publication of the Committee's									
Reports									Price
2.	Rhopalocera	..	..	..	..	..	..	..	3s. 6d.
3.	Odonata	..	..	..	..	..	..	..	3s. 6d.
4.	Neuroptera	..	..	..	..	..	..	..	3s. 6d.
5.	Hymenoptera Aculeata	..	..	..	..	..	..	..	15s. 0d.
6.	Coleoptera Carabidae	..	..	..	..	..	..	..	10s. 0d.
7.	Coleoptera Hydradephaga	..	..	..	..	..	..	..	5s. 0d.
8.	Hemiptera Heteroptera	..	..	..	..	..	..	..	39s. 0d.
9.	Coleoptera Staphylinidae	..	..	..	..	..	..	..	40s. 0d.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS.

The Society has undertaken the issue of a series of publications intended to provide illustrated Keys to the whole of the British Insect Fauna so far as this is possible.

It is proposed to cover this field in a series of ten volumes, arranged as follows:—

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| <p>I. Part 1. General Introduction.</p> <p>2. Thysanura.</p> <p>3. Protura.</p> <p>4. Collembola.</p> <p>5. Dermaptera and Orthoptera.</p> <p>6. Plecoptera.</p> <p>7. Psocoptera.</p> <p>8. Anoplura.</p> <p>II. Hemiptera. III. Lepidoptera. IV and V. Coleoptera.</p> <p>VI. Hymenoptera : Symphyta and Aculeata.</p> <p>VII. Hymenoptera : Ichneumonidae.</p> <p>VIII. Hymenoptera : Cynipoidea, Chalcidoidea and Serphoidea.</p> <p>IX. Diptera : Nematocera and Brachycera. X. Diptera : Cyclorrhapha.</p> | <p>Part 9. Ephemeroptera.</p> <p>10. Odonata.</p> <p>11. Thysanoptera.</p> <p>12. Neuroptera.</p> <p>13. Mecoptera.</p> <p>14. Trichoptera.</p> <p>15. Strepsiptera.</p> <p>16. Siphonaptera.</p> |
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The following parts are now available:—

- Vol. I, Part 2. Thysanura and Diplura. By M. J. Delany. Price 2s. 6d. plus postage.
- Vol. I, Part 5. Dermaptera and Orthoptera. By W. D. Hincks. Price 3s. 6d. plus postage.
- Vol. I, Part 6. Plecoptera. By D. E. Kimmins. Price 3s. 6d. plus postage.
- Vol. I, Part 9. Ephemeroptera. By D. E. Kimmins. Price 3s. 6d. plus postage.
- Vol. I, Part 10. Odonata. By F. C. Fraser. Price 7s. 6d. plus postage.
- Vol. IV, Part 3. Coleoptera, Hydradephaga. By F. Balfour-Browne. Price 6s. plus postage.
- Vol. IV, Part 8a. Coleoptera : Staphylinidae (part). By C. E. Tottenham. Price 15s. 0d. plus postage.
- Vol. V, Part 7. Coleoptera : Coccinellidae and Sphindidae. By R. D. Pope. Price 2s. 6d. plus postage.
- Vol. V, Part 9. Coleoptera. By F. D. Buck. Price 6s. plus postage.
- Vol. V, Part 12. Coleoptera : Cerambycidae. By E. A. J. Duffy. Price 3s. 6d. plus postage.
- Vol. V, Part 15. Coleoptera, Scolytidae and Platypodidae. By E. A. J. Duffy. Price 3s. 6d. plus postage.
- Vol. VI, Part 2a. Hymenoptera : Symphyta (part). By R. B. Benson. Price 10s. 0d. plus postage.
- Vol. VI, Part 2b. Hymenoptera : Symphyta (contd.). By R. B. Benson. Price 15s. 0d. plus postage.
- Vol. IX, Part 1. Diptera : Introduction and Key to Families. By H. Oldroyd. Price 7s. 6d. plus postage.
- Vol. IX, Part 2. Diptera, Nematocera : Families TIPULIDAE to CHIRONOMIDAE. By R. L. Coe, Paul Freeman and P. F. Mattingly. Price 20s. 0d. plus postage.
- Vol. X, Part 1. Diptera : Syrphidae. By R. L. Coe. Price 17s. 6d. plus postage.
- Vol. X, Part 4a. Diptera, Cyclorrhapha (part). By F. I. van Emden. Price 20s. 0d. plus postage.

Orders for the complete series or for separate parts can be placed with the Registrar at the Society's rooms now, but prices can only be quoted for those parts already issued.

Fellows of the Society may purchase one copy at a discount of 25 per cent.; additional copies at the full published price.

STYLOPS, a Journal of Taxonomic Entomology.

1932-1935. Vols. 1-4 (all issued). Price £2 3s. 0d. each; to Fellows £1 12s. 9d.

HÜBNER: A BIBLIOGRAPHICAL AND SYSTEMATIC ACCOUNT OF THE ENTOMOLOGICAL WORKS OF JACOB HÜBNER AND THE SUPPLEMENTS THERETO. In 2 vols. By Francis Hemming. Price: Vol. 1. 605 pp. £1 15s. 0d.; Vol. 2. 275 pp. 15s. 0d.

THE HISTORY OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1833-1933. By S. A. Neave, assisted by F. J. Griffin. Price 10s. 6d.

SERIAL PUBLICATIONS IN THE LIBRARY OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. 1951. Price 5s. 0d.

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